Exploring the Feasibility of Implementing a Medication Assisted Therapy Program Through the Emergency Department

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Honors Thesis
UNC Eshelman School of Pharmacy
University of North Carolina at Chapel Hill

3/1/2021

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Total word count: 2,081

Number of Figures/Tables: 4

Number of References: 12

Journal Selected for Formatting: *The Journal of Emergency Medicine*

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Abstract

Background: The opioid epidemic is complex and concerning, but of particular concern is insufficient addiction therapy and mortality from opioid-related overdose. Lack of addiction management increases the likelihood of an individual presenting to the Emergency Department (ED) for an opioid-related overdose. Medication Assisted Therapy (MAT) has been shown to reduce opioid use, reduce opioid related mortality, and can be initiated in the ED. Objective: We sought to identify local factors that could affect MAT uptake and better understand the feasibility of employing a MAT program through our local community hospital's ED. Methods: We employed a single center, retrospective cohort study in patients who presented to our Hospital's ED with an opioid-related emergency between January 1, 2018 to August 31, 2019. Results: A total of 1,440 patients presented with an opioid-related emergency over 17 months. There were 1,974 visits with opioid-related ICD10 codes, and 305 patients accounted for 41% of all opioid-related ED visits. Only 15% of patients were discharged to other facilities for potential substance use disorder treatment. Rate of mortality was 6 /1,000 opioid related ED patient visits. Conclusion: White males in their 20's through 30's appear to have the highest risk for an opioid-related ED visit. It was common for patients to present multiple times with another opioid incident, but most likely survive the emergency and be discharged home.

Keywords: Opioid; Medication Assisted Therapy; Emergency Department

Introduction

The opioid epidemic is a multifaceted and complex problem, but of particular concern are over-prescription of opioids, increased addiction, insufficient addiction therapy, and increased mortality from opioid-related overdose (1-3). On-going addiction to opioids and lack of addiction management increases the likelihood of an individual presenting to Emergency Departments (ED) once or repeatedly for an opioid-related overdose (3). This behavior puts a financial burden on the healthcare system and increases the chance the patient dies due to the overdose (2). Nationally in 2018, opiates were involved in almost 47,000 deaths (4). In 2018 1,718 NC residents died from an unintentional opioid-related overdose (5). Buncombe County, located in Western North Carolina, had 71 opioid-related deaths in 2018 (5).

Multiple acts of legislation, both in North Carolina and nationally, were passed to address factors that contribute to the opioid epidemic. Examples of statutes include The Drug Addiction Treatment Act (DATA) of 2000 and the North Carolina STOP Act of 2017 (6,7). While some aspects of the opioid epidemic have begun to be addressed by governing bodies and healthcare professionals, addiction and sufficient treatment of addiction are lagging behind (2,3). According to the 2015 American Society of Addiction Medicine (ASAM) Guidelines, counseling and psychological therapy, in conjunction with pharmacologic therapy or medication assisted therapy (MAT) are the recommended means for addressing opioid use disorder (OUD) (8). MAT entails using buprenorphine with or without naloxone, or methadone to reduce the use of illicit substances in an opioid-dependent individual. MAT has been shown to reduce opioid use, prevent

transmission of infectious diseases such as HIV and Hepatitis C, and reduce opioid related mortality (7).

In order to expand patient access to MAT, hospitals, and specifically EDs, have begun to implement MAT programs. The EDs at Yale New Haven Hospital in New Haven, CT, Massachusetts General Hospital in Boston, MA, and Sacred Heart Medical Center in Spokane, WA are three locations in which MAT in the ED setting have been successfully implemented. At Yale, evidence has shown that utilizing the ED to initiate MAT increases engagement of addiction therapy compared to referral to outpatient MAT alone, decreases self-reported illicit opioid use, and decreases use of inpatient addiction services (9). Further, evidence has shown that initiating MAT in the ED is more cost-effective than referral when considering healthcare system-associated costs (10). EDs with established MAT programs have identified key factors related to the successful adoption and implementation of MAT programs, including how to increase provider buy-in for implementation. For example, at Sacred Heart, educating providers about the cost-effectiveness of MAT and the degree of the opioid problem, have both contributed to physician buy-in to MAT (11).

MAT has been shown to reduce opioid use, prevent transmission of infectious diseases such as HIV, and reduce opioid related mortality (7). While ED implemented MAT programs have begun to emerge nationwide, to our knowledge, the ED-implemented MAT program at Mission Hospital is the first in Asheville and the state of North Carolina. There are unique contextual issues in Buncombe County, including availability of outpatient MAT services, and number

of DATA 2000-waivered providers, which may affect the uptake and implementation of the program. Thus, we sought to identify local problems within Asheville and Buncombe County that could affect uptake. Finally, we hoped to translate the success of other hospitals and understand the feasibility of employing a MAT program through our Hospital's ED. To do this we retrospectively reviewed out patient population for opioid related ED visits and subsequent discharge dispositions.

Methods

Study Design and Population

This single center, retrospective cohort study included patients ≥ 18 years of age who were treated in our Hospital's ED between January 1, 2018 to August 31, 2019. Our ED is a level 2 trauma center and serves a referral center for 17 counties. In addition to ≥ 18 years of age, patients also needed to have an opioid-related emergency which was defined by any opioid-related ICD10 code assigned to a patient as their chief complaint upon ED presentation. Patients who were admitted to the hospital were excluded. This study was approved by our Hospital's and HCA Healthcare Institutional Review Board. Due to the retrospective nature of the study, informed consent was not required.

Data Abstraction and Study Endpoints

Clinical, and demographic data were electronically abstracted from Cerner, Mission's electronic health record system. Patients were only included if they were ≥ 18

years of age, and also had any opioid-related ICD10 code assigned as their chief complaint upon ED presentation. A list of opioid-related ICD10 codes are provided in Supplemental Figure A. The primary endpoint was to determine the amount of opiate-related ED visits to Mission Hospital. Secondary endpoints included patient demographics, discharge dispositions, and identification of patients with multiple opioid-related ED visits.

Statistical Analysis

Descriptive statistics were used to asses total visits, demographics, and discharge dispositions. Data are reported as counts (% of total population) and mean ± standard deviation. Male and female sex were compared using Pearson's chi-square. Analyses were performed using SAS v9.4 (Cary, NC). P-values <0.05 were considered statistically significant.

Results

Demographics

A summary of study workflow can be found in Figure 1. The mean age was 33±14 years, 35% were in their twenties, 30% in their thirties, 18% in their forties, 9% in their fifties, 9% in their sixties or greater (Table 1). Males presented 1.5 times for frequently than females (P <.001). Whites made up the largest proportion of patients, followed by blacks, patients who refused to disclose their race, and other (Table 1). Patients presented from a wide array of communities, however 70% of all patients were Buncombe County residents, and 45% of all patients were Asheville residents.

Patient Visits and Discharge Dispositions

A total of 1,440 patients led to a sum of 1,974 opioid-related ED visits from January 1, 2018 – August 31, 2019. Most patients did not report back to the ED with another opioid-related emergency. However, 305 patients had more than one opioid-related ED visit, leading to 818 (41%) of the total 1,974 visits. A breakdown of patients who presented with more than one opioid-related ED visit can be seen in Figure 2. At the time of data completion, there was a total of 1,963 discharge dispositions with the majority being home, psychiatric facility, against medical advice, and rehabilitation (Table 2). Of the total discharge dispositions, only 15% of patients were discharge to an additional facility where additional treatment could be given.

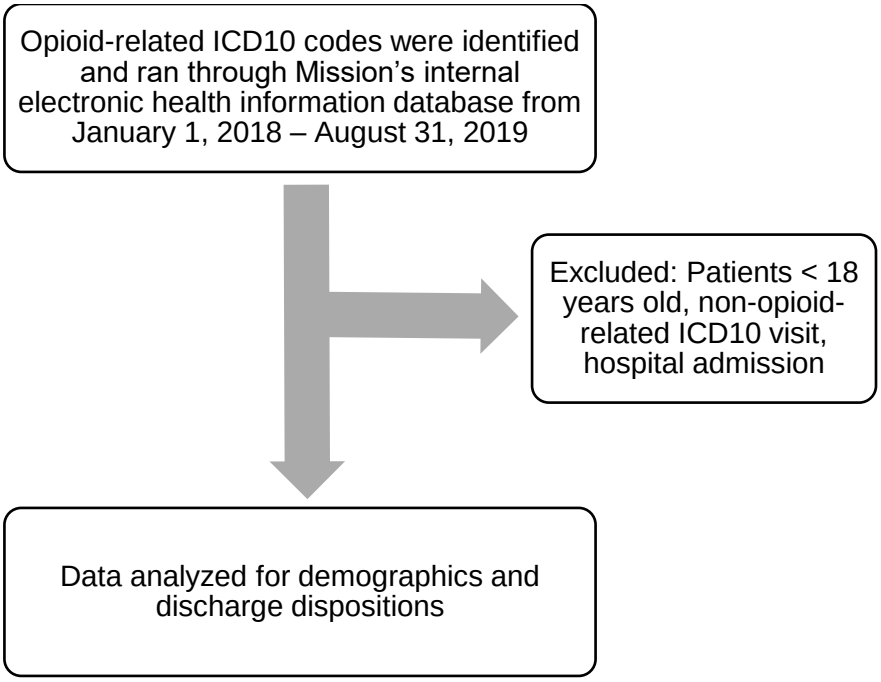

Figure 1. Basic workflow opioid-related ED visits to Mission Hospital.

Patient Characteristic (N=1,440)	**n (%)**
Male Sex	873 (60.63) P< 0.001
Female Sex	574 (39.86)
Age Group	
20 – 29	502 (34.86)
30 – 39	435 (30.21)
40 – 49	254 (17.64)
50 – 59	126 (8.75)
≥ 60	123 (8.54)
Race	
Black or African American	98 (6.81)
White	1304 (90.56)
Patient refuses or does not know	17 (1.18)
Other	21 (1.46)

Table 1. Demographic breakdown of patient sex, age, and race.

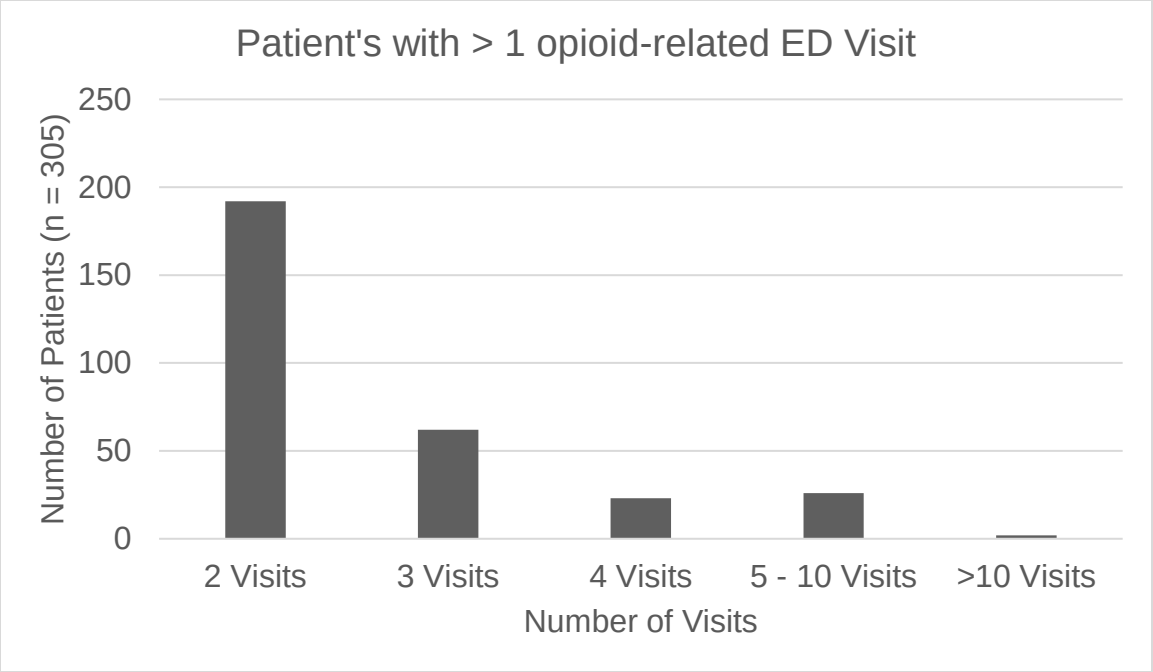

Figure 2. Breakdown of patients who presented with >1 opioid-related ED visit.

Discharge Disposition (N=1,966)	**n (%)**
Routine/Home	1487 (75.64)
Disch/Trans to Psychiatric Facility	210 (10.68)
Discharge to Rehab	78 (3.97)
Discharge to Law Enforcement (Jail)	43 (2.19)
Discharge to Skilled Nursing Facility	7 (0.36)
Discharge to Assisted Living	3 (0.15)
Disch/Trans to Critical Access Hospital	2 (0.1)
Discharge to Intermediate Care Facility	1 (0.05)
Disch/Trans to Acute Care Hospital	1 (0.05)
Disch/Trans Federal Health Care Facility	1 (0.05)
Hospice - Medical Facility	1 (0.05)
Discharged Other Healthcare Institution	1 (0.05)
AMA (Left Against Medical Advice)	81 (4.12)
LBTC (Left Before Treatment Complete)	36 (1.83)
LWBS (Left Without Being Seen)	3 (0.15)
LTC Facility	1 (0.05)
Expired	12 (0.61)

Table 2. Breakdown of discharge dispositions of opioid-related ED visits from January 1, 2018 – August 31, 2019.

Discussion

We sought to better identify opioid-related ED visits presenting to our community Hospital. Specifically, we sought to understand the local patient population by using demographic data of patients who were only treated in the ED and were not admitted. Additionally, we used discharge dispositions to understand if patients were going to other locations to potentially receive additional treatment. Our results suggest that opioid-related emergencies are common at our Hospital. The population who most commonly present with an opioid-related emergency is a white male in his twenties or thirties and a resident in the county where we are located. It was also common for patients to present multiple times with another opioid incident. While an overwhelming majority of patients managed in the ED were discharged routinely home and mortality was low.

Interestingly, opioid-related emergencies that ended in mortality only occurred at a rate of 6 per 1,000 patients. This suggests that the majority of patients who present to Mission with an opioid-related emergency survive. Nationally in 2018, opiates were involved in almost 47,000 deaths (4). In North Carolina, North Carolina Department of Health and Human Services reported that 1,718 residents have died from an unintentional opioid-related overdose in 2018 (5). Opiate mortality both nationally and within North Carolina, are trending down however. This downward trend needs further exploration in order to be fully explained. However, some factors that could be contributing include controlled substance prescription laws such as the North Carolina STOP Act, and increased awareness and/or access to MAT.

Our study also investigated where patients were going after discharge. We found that 76% of all patients were discharged home, and only 15% of patients were discharged to an additional facility including another hospital, long-term care facility, or psychiatric facility. We also found that 305 patients came back to Mission with another opioid-related emergency and accounted for 41% of all opioid-related ED visits. Risk factors for overdose death include psychological etiologies and history of substance abuse (12). These data indicate that a subset of the population could have a psychiatric, opiate or other substance use disorder, among other risk factors that increase the likelihood of an opioid mortality. Additionally, only 15% of total patients were discharged to other facilities including psychiatric facilities. This indicates that the majority of patients are not getting additional treatment for potential psychiatric disorders, including OUD. Both counseling and psychological therapy, in conjunction with MAT are the recommended means for addressing OUD in the ASAM Guidelines (8). Because the majority of patients who presented to the ED with an opioid-related emergency were local county residents, there is greater likelihood of follow-up with MAT treatment in these patients should it be initiated in our ED. Our results show that there is room for improvement in order to ensure that patients who present with an opioid-related emergency, get the necessary treatment or referral in order to minimize risk of re-presentation.

This study does have limitations however and could impact the interpretation of the data. The choice of doing a single-center does create selection bias and does limit extrapolation of the opioid epidemic in areas outside of region. Patients that present with opioid-emergencies, regardless of hospital location, present similarly however. Our

data analysis was also conducted in a narrow window of time. This does not give us information regarding long-term following of these patients, and only represents a handful of visits. Misclassification bias is also a concern based on validity of the EHR. However, broad use of opiate-related ICD10's allowed for capturing a larger patient population.

Our data does not capture patients that refused emergency transport, patients who died from opioid-related overdose outside of the ED, or patients who were admitted to the hospital from the ED. This most likely implies that our results are lower than that representative of the entire region. To get a better understanding of the volume of mortality associated with the opioid epidemic in local Health and Human Services data can be analyzed. Local EMS data could be of benefit in order to gain further insight into understanding how many overdose responses don't receive medical transport.

The results from this study allow us to better understand the volume of patients presenting to our ED with an opioid-associated emergency. The knowledge we learned from this study indicates that MAT could provide benefit at our hospital's ED. Additionally, this data will allow us to conduct future aims. We plan to use this data to educate emergency providers on hospital-specific numbers of opioid-emergencies, in hopes that they become DATA 2000-waivered to increase MAT availability to patients with OUD. Immediately prior and following the education session, a survey should be conducted to assess provider likelihood to become DATA-2000 waivered and prescribe MAT in our ED.

References

1. Olsen Y, Sharfstein JM. Confronting the Stigma of Opioid Use Disorder—and Its Treatment. JAMA. 2014;311(14):1393–1394. doi:10.1001/jama.2014.2147

2. Wilkerson RG, Kim HK, Windsor TA, Mareiniss DP. The Opioid Epidemic in the United States. Emergency Medicine Clinics of North America. 2016;34(2). doi:10.1016/j.emc.2015.11.002.

3. Knudsen HK, Abraham AJ, Oser CB. Barriers to the implementation of medication-assisted treatment for substance use disorders: the importance of funding policies and medical infrastructure. Eval Program Plann. 2011;34(4):375-81.

4. Centers for Disease Control. (2020). Drug Overdose Deaths Retrieved April 14, 2020, from https://www.cdc.gov/drugoverdose/data/statedeaths.html

5. NC Department of Health & Human Services. NC Overdose Overview Stats Retrieved April 14, 2020, from https://injuryfreenc.shinyapps.io/OpioidActionPlan/

6. Kumar J, Greenblatt L. How North Carolina Hospitals, Health Systems, and Care Providers are Uniting to Fight the Opioid Epidemic. North Carolina Medical Journal. 2018;79(3):177-178. doi:10.18043/ncm.79.3.177.

7. Jones CM, Campopiano M, Baldwin G, Mccance-Katz E. National and State Treatment Need and Capacity for Opioid Agonist Medication-Assisted Treatment. American Journal of Public Health. 2015;105(8). doi:10.2105/ajph.2015.302664.

8. American Society of Addiction Medicine. Practice Guideline for the Treatment of Patients With Substance Use Disorders, Second Edition. APA Practice Guidelines for the Treatment of Psychiatric Disorders: Comprehensive Guidelines and Guideline Watches. June 2015. doi:10.1176/appi.books.9780890423363.141077.

9. D'Onofrio G, O'Connor PG, Pantalon MV, et al. Emergency Department–Initiated Buprenorphine/Naloxone Treatment for Opioid Dependence: A Randomized Clinical Trial. JAMA. 2015;313(16):1636–1644. doi:10.1001/jama.2015.3474.

10. Busch, S. H., Fiellin, D. A., Chawarski, M. C., Owens, P. H., Pantalon, M. V., Hawk, K., Bernstein, S. L., O'Connor, P. G., and D'Onofrio, G. (2017) Cost-effectiveness of emergency department-initiated treatment for opioid dependence. Addiction, 112: 2002– 2010. doi: 10.1111/add.13900.

11. Initiating medication-assisted treatment for patients presenting with opioid withdrawal. ED Management. 2017;29(8).

12. Webster LR. Risk factors for opioid-use disorder and overdose. Anesthesia and analgesia. 11/2017;125(5):1741-1748. doi: 10.1213/ANE.0000000000002496.

Article Summary

Lack of addiction management increases the likelihood of an individual presenting to the Emergency Department (ED) for an opioid-related overdose. Medication Assisted Therapy (MAT) has been shown to reduce opioid use, reduce opioid related mortality, and can be initiated in the ED. *What does this study attempt to show?* We sought to identify local factors that could affect MAT uptake and better understand the feasibility of employing a MAT program through Mission Hospital's ED. *What are the key findings?* A total of 1,440 patients presented with an opioid-related emergency over 17 months. A total of 305 patients accounted for 41% of all opioid-related ED visits, with only 15% of all patients being discharged to seek additional substance abuse treatment. *How is patient care impacted?* There is room for improvement with MAT access. Increased access can potentially prevent patients from re-presenting to the ED with another opioid-related emergency and decrease risk for opioid-related mortality.

Report Addendum

Acknowledgements

We would like to thank Brian Hayes, Courtenay Wilson and Mountain Area Health and Education Center, and Cole Sloan for their contributions to helping us conduct interviews regarding MAT feasibility. We would also like to thank Lindsey Jennings and her colleagues at Medical University of South Carolina for not only participating in sharing her experience with MAT feasibility in the ED but also for sharing with us an MAT survey for ED providers. Lastly would like to thank Christopher Wiesen and the Odum Institute, and David Hicks for their contributions in helping analyze data.

Funding Support

The authors have no funding support to disclose.

Conflicts of Interest

The authors have no conflicts of interest to disclose.

Dissemination Plan

I presented my research to the annual American Society of Health-System Pharmacists (ASHP) Midyear Conference in December of 2020.

Challenges Encountered

Aims 3 and 4 were not able to be conducted due to Covid-19, and are future directions. The overall goal of these aims were to address emergency provider willingness to prescribe MAT. These aims were originally projected to be completed on the same day. For Aims 3 and 4 the specific plan was to develop two MAT surveys and

to conduct an education session via PowerPoint to emergency providers. Two surveys were to be printed, and the initial pre-education session survey handed out prior to the start of the session. After the collection of all initial surveys, the education session was to be conducted. Finally, the post-education survey would then be given out. The only difference between the two surveys was to be the addition of one question related to post-session likelihood to become waivered to prescribe MAT. Results from both surveys were then going to be analyzed to determine the likelihood of emergency providers to become MAT waivered.

Supplemental Materials

Diagnosis Code	Diagnosis Description	FINs
F11.10	Opioid abuse, uncomplicated	525
F11.11	Opioid abuse, in remission	14
F11.120	Opioid abuse with intoxication, uncomplicated	6
F11.121	Opioid abuse with intoxication delirium	1
F11.129	Opioid abuse with intoxication, unspecified	5
F11.14	Opioid abuse with opioid-induced mood disorder	2
F11.150	Opioid abuse with opioid-induced psychotic disorder with delusions	1
F11.20	Opioid dependence, uncomplicated	1220
F11.21	Opioid dependence, in remission	40
F11.220	Opioid dependence with intoxication, uncomplicated	1
F11.229	Opioid dependence with intoxication, unspecified	1
F11.23	Opioid dependence with withdrawal	265
F11.24	Opioid dependence with opioid-induced mood disorder	7
F11.259	Opioid dependence with opioid-induced psychotic disorder, unspecified	2
F11.288	Opioid dependence with other opioid-induced disorder	4
F11.29	Opioid dependence with unspecified opioid-induced disorder	187
F11.90	Opioid use, unspecified, uncomplicated	208
F11.920	Opioid use, unspecified with intoxication, uncomplicated	1
F11.921	Opioid use, unspecified with intoxication delirium	5
F11.929	Opioid use, unspecified with intoxication, unspecified	1
F11.93	Opioid use, unspecified with withdrawal	3
F11.94	Opioid use, unspecified with opioid-induced mood disorder	1
F11.951	Opioid use, unspecified with opioid-induced psychotic disorder with hallucinations	1
F11.988	Opioid use, unspecified with other opioid-induced disorder	3
F11.99	Opioid use, unspecified with unspecified opioid-induced disorder	47
R06.03	Acute respiratory distress	294

T40.1X1A	Poisoning by heroin, accidental (unintentional), initial encounter	178
T40.1X2A	Poisoning by heroin, intentional self-harm, initial encounter	6
T40.1X4A	Poisoning by heroin, undetermined, initial encounter	29
T40.2X1A	Poisoning by other opioids, accidental (unintentional), initial encounter	74
T40.2X2A	Poisoning by other opioids, intentional self-harm, initial encounter	13
T40.2X4A	Poisoning by other opioids, undetermined, initial encounter	38
T40.2X5A	Adverse effect of other opioids, initial encounter	188
T40.3X1A	Poisoning by methadone, accidental (unintentional), initial encounter	14
T40.3X5A	Adverse effect of methadone, initial encounter	7
T40.4X1A	Poisoning by other synthetic narcotics, accidental (unintentional), initial encounter	46
T40.4X2A	Poisoning by other synthetic narcotics, intentional self-harm, initial encounter	10
T40.4X4A	Poisoning by other synthetic narcotics, undetermined, initial encounter	7
T40.4X5A	Adverse effect of other synthetic narcotics, initial encounter	27
T40.5X1A	Poisoning by cocaine, accidental (unintentional), initial encounter	20
T40.5X2A	Poisoning by cocaine, intentional self-harm, initial encounter	2
T40.5X4A	Poisoning by cocaine, undetermined, initial encounter	6
T40.5X5A	Adverse effect of cocaine, initial encounter	5
T40.601A	Poisoning by unspecified narcotics, accidental (unintentional), initial encounter	141
T40.602A	Poisoning by unspecified narcotics, intentional self-harm, initial encounter	7
T40.604A	Poisoning by unspecified narcotics, undetermined, initial encounter	3
T40.605A	Adverse effect of unspecified narcotics, initial encounter	124
T40.691A	Poisoning by other narcotics, accidental (unintentional), initial encounter	1
T40.692A	Poisoning by other narcotics, intentional self-harm, initial encounter	1
T40.695A	Adverse effect of other narcotics, initial encounter	3
T40.7X1A	Poisoning by cannabis (derivatives), accidental (unintentional), initial encounter	11
T40.7X2A	Poisoning by cannabis (derivatives), intentional self-harm, initial encounter	3

T40.7X4A	Poisoning by cannabis (derivatives), undetermined, initial encounter	1
T40.7X5A	Adverse effect of cannabis (derivatives), initial encounter	4
T40.8X1A	Poisoning by lysergide [LSD], accidental (unintentional), initial encounter	1
T40.8X4A	Poisoning by lysergide [LSD], undetermined, initial encounter	3
T40.901A	Poisoning by unspecified psychodysleptics [hallucinogens], accidental (unintentional), initial encounter	1
T40.905A	Adverse effect of unspecified psychodysleptics [hallucinogens], initial encounter	1
T40.991A	Poisoning by other psychodysleptics [hallucinogens], accidental (unintentional), initial encounter	1

Supplemental Table 1. Opioid-related emergency defined by Diagnosis Code (ICD10 Codes), and their associated Financial Identification Numbers.

There was a recent study by D'Onofrio and colleagues (JAMA, 2015) that showed that ED-initiated buprenorphine improved rates of engagement in addiction treatment when compared with referral to outpatient care.

Open-Ended Questions

What do you believe are the ***advantages*** of starting buprenorphine for patients with opioid use disorder in the ER?

What do you believe are the ***disadvantages*** of starting buprenorphine to patients with opioid use disorder in the ER?

Is there anything else you associate with or would like to share about your own views about prescribing buprenorphine to patients with opioid use disorder during an ER visit?

Are there any individual or groups who would ***approve*** of your prescribing buprenorphine to patients with opioid use disorder during an ER visit?

Are there any individual or groups who would ***disapprove*** of your prescribing buprenorphine to patients with opioid use disorder during an ER visit?

Is there anything else you associate with other people's views about prescribing buprenorphine to patients with OUD during an ER visit?

What factors or circumstances would ENABLE you to prescribe buprenorphine to patients with opioid use disorder during an ER visit?

What factors or circumstances would make it DIFFICULT or IMPOSSIBLE for you to prescribe Buprenorphine to patients with opioid use disorder during an ER visit?

Are there any other issues that come to mind when you think about prescribing buprenorphine to patients with opioid use disorder during an ER visit?

Likert-questions

Attitude

Prescribing buprenorphine to patients with opioid use disorders is

harmful 1 2 3 4 5 6 7 beneficial

good 1 2 3 4 5 6 7 bad

pleasant (for me) 1 2 3 4 5 6 7 unpleasant (for me)

worthless 1 2 3 4 5 6 7 useful

1. Most people who are important to me think that

I should 1 2 3 4 5 6 7 I should not

prescribe buprenorphine to patients with opioid use disorder.

2. It is expected of me that I prescribe buprenorphine to patients with opioid use disorder.

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

3. I feel under social pressure to prescribe buprenorphine to patients with opioid use disorder.

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

4. People who are important to me want me to prescribe buprenorphine to patients with opioid use disorder.

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

Self-efficacy

1. I am confident that I could prescribe buprenorphine to patients with opioid use disorder if I wanted to

   Strongly disagree 1 2 3 4 5 6 7 Strongly agree

2. For me to prescribe buprenorphine to patients with opioid use disorder is

   Easy 1 2 3 4 5 6 7 Difficult

Controllability

3. The decision to prescribe buprenorphine to patients with opioid use disorder is beyond my control.

   Strongly disagree 1 2 3 4 5 6 7 Strongly agree

4. Whether I prescribe buprenorphine to patients with opioid use disorder is entirely up to

me.

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

Intention (8 hour waiver course)

1. I expect to get waivered to prescribe buprenorphine for patients with opioid use disorders

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

2. I want to get waivered to prescribe Buprenorphine to patients with opioid use disorders

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

3. I intend to get waivered to prescribe buprenorphine to patients with opioid use disorders

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

4. I would be more likely to take the 8-hour required course to prescribe buprenorphine if provided with:

CME Strongly disagree 1 2 3 4 5 6 7 Strongly agree

Monetary compensation Strongly disagree 1 2 3 4 5 6 7 Strongly agree

Paid Time Off Strongly disagree 1 2 3 4 5 6 7 Strongly agree

5. I would be **more likely** to prescribe buprenorphine in the ED setting:

With on-call specialist consultation: Strongly disagree 1 2 3 4 5 6 7 Strongly agree

With outpatient follow-up availability: Strongly disagree 1 2 3 4 5 6 7 Strongly agree

If my colleagues were also doing it: Strongly disagree 1 2 3 4 5 6 7 Strongly agree

If it did not require an 8-hr training: Strongly disagree 1 2 3 4 5 6 7 Strongly agree

Intention Simulation

The first patient is a 29-year-old female, who comes into the emergency room late at night complaining of feeling nauseous, vomiting, anxious, and sweating. She states that she is suffering from withdrawals after using heroin in the morning. She indicates that she began using heroin 8 months ago and that her usage of the drug has gradually increased over time. She is very concerned about his drug use and wants to stop using the drug. She has no other ongoing

medication conditions. She also states that this is his first time visiting the emergency room for help with her drug use.

Your decision: Prescribe Buprenorphine? YES NO

On the scale 1 to 7, how difficult was it for you to make a decision for this scenario?

Not at all Difficult 1 2 3 4 5 6 7 Extremely Difficult

The second patient is a 49-year-old male, who comes into the emergency room complaining of constipation and trouble breathing. You asked the patient if he used any drugs recreationally and he denied any drug use. Upon physical examination, you noticed that the patient's pupil's are constricted and that the pupil is intermittently nodding off. Based on his symptoms and exam findings, you decided to perform a drug panel on the patient. The drug panel returned positive for opiate use. You confront the patient with the test results and the patient finally admits to abusing fentanyl after being put on the medication for his chronic back pain several years ago.

Your decision: Prescribe Buprenorphine? YES NO

On the scale 1 to 7, how difficult was it for you to make a decision for this scenario?

Not at all Difficult 1 2 3 4 5 6 7 Extremely Difficult

The third patient is a 16-year-old male, who comes into the emergency room with his mother who states that she concerned about her son's drug use. You asked the patient if he used any drugs recreationally and he states that he uses oxycodone with his friends. He also indicates that he began using the drug with a group of friends about 3 months ago and does not see a problem with his drug use if he is enjoying himself. The patient's mother is very concerned for her son's health and wants to know if anything could be done to curtail or help treat his drug use.

Your decision: Prescribe Buprenorphine? YES NO

On the scale 1 to 7, how difficult was it for you to make a decision for this scenario?

Not at all Difficult 1 2 3 4 5 6 7 Extremely Difficult

The fourth patient is a 35-year-old female, who comes into the emergency room late at night complaining of headaches, fatigue, and inability to sleep for the past several days. She states that she has been using morphine recreationally for 1 year in order to cope with the multiple stresses in her life after being promoted at her job. She wants to stop using the drug but is unsure of how to seek help. She indicates that she has been seen several times in the emergency room for similar problems.

Your decision: Prescribe Buprenorphine? YES NO

On the scale 1 to 7, how difficult was it for you to make a decision for this scenario?

Not at all Difficult 1 2 3 4 5 6 7 Extremely Difficult

The fifth patient is a 25-year-old male, who comes into the emergency room late via the ambulance after overdosing on heroin. You and the nursing staff were able to stabilize the patient before the patient was hospitalized for further monitoring and care. A couple of weeks later, the same person visits the emergency room during your evening shift and is suffering from symptoms of withdrawals after using heroin the previous night. He states that he has been using heroin ever since his high school graduation party. He indicates that he open to stopping his heroin use due to the impact the drug has had on his life.

Your decision: Prescribe Buprenorphine? YES NO

On the scale 1 to 7, how difficult was it for you to make a decision for this scenario?

Not at all Difficult 1 2 3 4 5 6 7 Extremely Difficult

Supplemental Methods 1. MAT survey created by Dr. Lindsey Jennings and her colleagues at Medical University of South Carolina which will be modified for Aims 3 and 4.